REMARKS

Claims 1-38 stand rejected under 35 U.S.C. §102(b) as being anticipated by Krivitski '989.

In response to applicant's prior arguments that Krivitski '989 fails to disclose "a known volume over a known time" Examiner Dickens asserts "it is noted that the features upon which applicant relies (i.e., a known volume over known time) are not recited in the rejected claim(s)." [Paper 13, Page 3]

The examiner's attention is respectfully directed to the claims as previously amended, which recite in part:

"Introducing a discrete known volume over a known time" (Claims 1-10);

"Introducing a discrete known volume over a known time" (Claims 20-21);

"Means for introducing a discrete known volume over a known time" (Claims 22-24).

That is, applicant respectfully submits the features upon which applicant relied upon in Paper 12 (specifically, the known volume over a known time) were recited in the claims. As the cited reference does not disclose or suggest use of the known volume over a known time, applicant respectfully submits these claims satisfy 35 U.S.C. §102(b).

Claims 11-19

Claims 11-19 recite in part, "introducing a known *flow rate* to the initial flow rate." [emphasis added]

The cited reference does not disclose or suggest introducing a known flow rate (which by definition of the term flow rate, is a given volume over a given time), as opposed to Krivitski '989, which employs a known volume. Therefore, applicant respectfully submits Claims 11-19 satisfy 35 U.S.C. §102.

The examiner is directed to page 7, lines 13-19, which recite in part, "a volumetric flow rate[1] . . . is a measure of the volume of liquid passing a cross-sectional area of the conduit per unit time, and may be expressed in units such as milliliters per minute (ml/min) or liters per minute (l/min)."

Claim 25

Claim 25 recites in part, "a known flow rate introducer selected to effect a discrete *known flow rate*." [emphasis added]

Again, the lack of a disclosure of a flow *rate* being introduced, as opposed to a measured volume in the '989 reference, precludes the '989 reference from sustaining the rejection under 35 U.S.C. §102.

Claims 26-33

Claims 26-33 recite in part, "introducing a known flow *rate* of an indicator into the conduit." [emphasis added]

Again, Krivitski '989 employs a known volume, which is independent of introduction time. Therefore, these claims also satisfy 35 U.S.C. §102.

Claim 37

Independent Claim 37 recites in part, a plurality of relationships wherein in each relationship, the initial blood flow rate is related to Qi (the flow rate).

Rate is known in the industry to require a given volume over a given time. As this is absent from Krivitski '989 applicant respectfully submits that Claim 37 is in condition for allowance.

[1] Rate 1. A quantity measured with respect to another measured quantity; a rate of speed of 60 miles an hour. The American Heritage® Dictionary of the English Language, Fourth Edition Copyright © 2000 by Houghton Mifflin Company.

Claim 38

Claim 38 recites in part, "determining the initial blood flow rate Q, corresponding to an *introduced flow rate* to the initial flow rate." [emphasis added]

As Krivitski '989 employs an initial volume, rather than a flow rate, Claim 38 satisfies 38 U.S.C. §102(b).

The term "volume change" has been removed in favor of "known volume over a known time", or "known flow rate". Applicant respectfully requests reconsideration of the pending claims, Claims 1-40 and respectfully submits each of the pending claims is in condition for allowance in view of the cited references.

If, however, Examiner Dickens feels that any further issues remain, she is cordially invited to contact the undersigned so that such matters may be promptly resolved.

Respectfully submitted,

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Date: July 17, 2002

VERSION WITH MARKINGS SHOWING CHANGES MADE

Figure 8 depicts how this configuration may be implemented in practice, using a single catheter. The catheter [22] 20 of Figure 8 includes the upstream port 51, a downstream port 53 and an intermediate sensor 50. Volume changes can be introduced by first introducing an upstream volume change into the upstream port 51 in the catheter 22, then introducing a downstream volume change into the downstream port 53 of the catheter. For simplicity, the volume change in the upstream port 51 is selected equal to the volume change into the downstream port 53 and = Qi. Flow measurements made during the injection will again be indicated by the suffix i. There are now two different kinds of measurements on the Qb sensor 50: one where the sensor indicates the downstream flow changes resulting from the first injection (= Qbdi) and one where the sensor indicates upstream flow changes resulting from the second injection (Qbui). The conservation of mass principle yields the following equations for the two injections:

$$Qui^* + Qi = Qbdi^* \qquad \text{(Eq. 17a)}$$

$$Qbui^* + Qi = Qdi^* \qquad \text{(Eq. 17b)}$$